

NAGASE

Application No. 09/921,601

Response to Office Action dated June 4, 2004

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**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in this application.

**Listing of Claims:**

Claim 1 (Original): An information input/output device for visually impaired users comprising:  
a braille output unit having a plurality of projectable dotted portions and enabling output of a plurality of braille patterns by controlling the projection of said dotted portions,  
an input means having a push part which is operated by a pushing operation, and  
a recognition means for recognizing that an operation concerning the braille patterns output by said braille output unit is input when said push part is pushed within a predetermined period of time after the braille patterns are output by said braille output unit;  
wherein said push part of said input means comprises said braille output unit.

Claim 2 (Currently Amended): An information input/output device for visually impaired users according to claim 1,  
wherein said braille output unit enables output of braille patterns at a plurality of positions along a transverse direction which is perpendicular to a direction of projection of said dotted portions, and  
said braille output unit comprises a control means of braille pattern which with controls the projection of said dotted portions in accordance with the output braille pattern, and further controls the projection of said dotted portions so as to move a braille pattern output by said dotted portions along the transverse direction while maintaining an arrangement of said braille pattern.

Claim 3 (Currently Amended): An information input/output device for visually impaired users according to claim 1,

NAGASE

Application No. 09/921,601

Response to Office Action dated June 4, 2004

wherein a plurality of said input means, each comprising a respective said braille output unit, is provided.

Claim 4 (Currently Amended): An information input/output device for visually impaired users according to claim 2,

wherein a plurality of said input means, each comprising a respective said braille output unit, is provided.

Claim 5 (New): An information input/output device for visually impaired users according to claim 1,

wherein said recognition means further recognizes that an operation concerning the braille patterns output by said braille output unit is not input when said push part is not pushed within said predetermined period of time after the braille patterns are output by said braille output unit.

Claim 6 (New): An information input/output device for visually impaired users according to claim 1, embodied as part of a vending machine.

Claim 7 (New): An information input/output device for visually impaired users according to claim 1, embodied as part of a fare adjustment machine.

Claim 8 (New): An information input/output device for visually impaired users according to claim 1, embodied as part of a cash dispenser.

Claim 9 (New): An information input/output device for visually impaired users comprising:

a braille output unit comprising a plurality of projectable dotted portions and enabling output of a plurality of braille patterns by controlling the projection of the dotted portions, an input device comprising a push part which is operated by a pushing operation, and

**NAGASE**

Application No. 09/921,601

Response to Office Action dated June 4, 2004

a processing unit, the processing unit recognizing that an operation concerning the braille patterns output by the braille output unit is input when the push part is pushed within a predetermined period of time after the braille patterns are output by the braille output unit, wherein the push part of the input means comprises the braille output unit.

Claim 10 (New): An information input/output device for visually impaired users according to claim 9,

wherein the braille output unit enables output of braille patterns at a plurality of positions along a transverse direction which is perpendicular to a direction of projection of the dotted portions, and

the braille output unit comprises a control means of braille pattern which controls the projection of the dotted portions in accordance with the output braille pattern, and further controls the projection of the dotted portions so as to move a braille pattern output by the dotted portions along the transverse direction while maintaining an arrangement of the braille pattern.

Claim 11 (New): An information input/output device for visually impaired users according to claim 9, further comprising:

a plurality of the input means, each comprising a respective braille output unit.

Claim 12 (New): An information input/output device for visually impaired users according to claim 10, further comprising:

a plurality of the input means, each comprising a respective braille output unit.

Claim 13 (New): An information input/output device for visually impaired users according to claim 9,

wherein the processing unit further recognizes that an operation concerning the braille patterns output by the braille output unit is not input when the push part is not pushed within the predetermined period of time after the braille patterns are output by the braille output unit.

**NAGASE**

Application No. 09/921,601

Response to Office Action dated June 4, 2004

**Claim 14 (New):** An information input/output device for visually impaired users according to claim 9, embodied as part of a vending machine.

**Claim 15 (New):** An information input/output device for visually impaired users according to claim 9, embodied as part of a fare adjustment machine.

**Claim 16 (New):** An information input/output device for visually impaired users according to claim 9, embodied as part of a cash dispenser.

**Claim 17 (New):** An information input/output device for visually impaired users comprising:  
a user-actuable input device comprising a braille output surface for outputting braille characters; and  
a processing system for controlling the outputting of the braille characters on the braille output surface and detecting inputs in response to actuations of the input device.

**Claim 18 (New):** An information input/output device for visually impaired users according to claim 17, wherein a sequence of braille characters is output to the braille output surface.

**Claim 19 (New):** An information input/output device for visually impaired users according to claim 17, wherein the braille output surface comprises openings through which selectively actuated pins extend to form the braille characters.

**Claim 20 (New):** An information input/output device for visually impaired users according to claim 19, further comprising an actuator responsive to signals from the processing system for selectively actuating the pins.

**Claim 21 (New):** An information input/output device for visually impaired users according to claim 20, wherein the actuator comprises a fluid-filled actuating mechanism.

**NAGASE****Application No. 09/921,601****Response to Office Action dated June 4, 2004**

**Claim 22 (New):** An information input/output device for visually impaired users according to claim 17, wherein the user-actuatable input device comprises a push button.

**Claim 23 (New):** An information input/output device for visually impaired users according to claim 17, which is embodied as part of a vending machine.

**Claim 24 (New):** An information input/output device for visually impaired users according to claim 17, embodied as part of a fare adjustment machine.

**Claim 25 (New):** An information input/output device for visually impaired users according to claim 17, embodied as part of a cash dispenser.